

REMARKS

In the non-final Office Action, dated September 29, 2009, the Examiner:

- rejects claims 1, 16, and 28 under 35 U.S.C. § 112, second paragraph, as allegedly indefinite;
- rejects claims 8 and 9 under 35 U.S.C. § 103(a) as allegedly unpatentable over ALFIERI (U.S. Patent Application Publication No. 2002/0099849) and SHAFER (U.S. Patent Application Publication No. 2002/019874);
- rejects claim 23 under 35 U.S.C. § 103(a) as allegedly unpatentable over AYERS (U.S. Patent No. 6,687,220) and SHAFER;
- rejects claims 1 and 16 under 35 U.S.C. § 103(a) as allegedly unpatentable over AYERS, ALFIERI and SHAFER; and
- rejects claims 24-26 under 35 U.S.C. § 103(a) as allegedly unpatentable over AYERS, SHAFER and ALFIERI.

Applicant traverses these rejections.

By way of the present amendment, Applicant amends claims 1, 8, 16, 23, and 28 to improve form. No new matter has been added by way of the present amendment. Claims 1, 8, 9, 16, 23-26 and 28 are pending.

Initial Comments

Applicant thanks the Examiner for indicating that claim 28 would be allowable upon overcoming the rejection under 35 U.S.C. § 112, second paragraph.

On December 14, 2009, Applicant's representative contacted the Examiner to arrange an interview to discuss the rejection of independent claims 1, 8, 16, and 23. The Examiner declined granting the interview until after the end of the year.

The Examiner indicated that an interview would be granted before the Examiner issues a next Office Action.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 1, 16, and 28 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

While not acquiescing in this rejection, Applicant amends claims 1, 16, and 28 to address the Examiner's concerns. Accordingly, Applicant requests that the Examiner reconsider and withdraw the rejection of claims 1, 16, and 28 under 35 U.S.C. § 112, second paragraph.

Rejection under 35 U.S.C. § 103(a) based on ALFIERI and SHAFER

Claims 8 and 9 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over ALFIERI and SHAFER. Applicant traverses this rejection.

Amended independent claim 8 recites a network point-of-presence (POP) comprising a single physical router having a plurality of resources, including logic resources, including routing processes to determine routing for received packets and forwarding processes to forward the received packets to an appropriate destination; and physical resources comprising control resources and data resources, the control resources including at least one routing table and the data resources including physical specifications of the single physical router; at least one backbone router, having a routing capacity, implemented, at an end-point of a high capacity network link, as a virtual router by the single physical router; and at least one regional router, having a routing capacity that is below the routing capacity of the at least one backbone router, implemented as a virtual router by the single

physical router, where the backbone virtual router and the regional virtual router reconfigurably share resources of the single physical router based on a plurality of resource sharing configurations and an input by a user, in order to implement different device-implemented virtual router resource sharing configurations based on different sets of network requirements. ALFIERI and SHAFER, whether taken alone or in any reasonable combination, do not disclose or suggest one or more features of amended claim 8.

For example, ALFIERI and SHAFER do not disclose or suggest at least one regional router, having a routing capacity that is below the routing capacity of the at least one backbone router, implemented as a virtual router by the single physical router. The Examiner relies on Fig. 1 of ALFIERI (and apparently ¶ 0023 of ALFIERI) for allegedly disclosing this feature. (Office Action, p. 3.) Applicant submits that this disclosure of ALFIERI does not disclose or suggest the above-identified feature of claim 8.

Fig. 1 of ALFIERI shows a wide area routed network 10 having routers 14. Par. 0023 of ALFIERI discloses that routers 14 include virtual access routers 20 and a virtual backbone router 22. This figure and section of ALFIERI do not disclose or suggest at least one regional router, having a routing capacity that is below the routing capacity of the at least one backbone router, implemented as a virtual router by the single physical router, as recited by claim 8. In fact, ALFIERI does not even mention anything about routing capacity of either the virtual access routers 20 or the virtual backbone router 22.

If the Examiner maintains this rejection, Applicant requests that the Examiner specifically point out where or how ALFIERI discloses that a routing

capacity of a regional router is below a routing capacity of a virtual backbone router.

Moreover, ALFIERI and SHAFER do not disclose or suggest that the backbone virtual router and the regional virtual router reconfigurably share resources of the single physical router based on a plurality of resource sharing configurations and an input by a user, in order to implement different device-implemented virtual router resource sharing configurations based on different sets of network requirements. The Examiner admits that ALFIERI does not disclose resources that are modifiable by a user and relies on ¶ 0004 of SHAFER for allegedly disclosing this feature. (Office Action, p. 4.) Applicants submit that this alleged disclosure of SHAFER does not disclose or suggest the above-mentioned feature of amended claim 8.

Par. 0004 of SHAFER discloses a network management interface that provides access to software modules and other resources on a router. The network management interface allows a user to configure the router to more efficiently manage router resources and to manage relationships with other routers. This section of SHAFER does not disclose or suggest that the backbone virtual router and the regional virtual router reconfigurably share resources of the single physical router based on a plurality of resource sharing configurations and an input by a user, in order to implement different device-implemented virtual router resource sharing configurations based on different sets of network requirements, as recited by amended claim 8.

While SHAFER's management interface may allow a user to configure a router based on various parameters, Applicant submits that amended claim 8 recites more than just configuring a router based on parameters. Rather, claim 8

specifically recites that the backbone virtual router and the regional virtual router reconfigurably share resources of the single physical router based on a plurality of resource sharing configurations and an input by a user. Thus, under claim 8, there are a plurality of resource sharing configurations that can be reconfigured, by a user, to control how each virtual router uses the resources of the single router. On the other hand, ¶ 0004 of SHAFER merely discloses a management interface that controls configuring a router. This section of SHAFER does not disclose or suggest a plurality of sharing configurations that control how multiple virtual routers share resources or reconfigurably controlling how multiple virtual routers share resources. In fact, neither this section nor any other section of SHAFER mentions sharing resources between a plurality of virtual routers. Therefore, SHAFER does not reasonably disclose or suggest that the backbone virtual router and the regional virtual router reconfigurably share resources of the single physical router based on a plurality of resource sharing configurations and an input by a user, in order to implement different device-implemented virtual router resource sharing configurations based on different sets of network requirements, as recited by amended claim 8.

For at the foregoing reasons, Applicant submits that amended claim 8 is patentable over ALFIERI and SHAFER, whether taken alone or in any reasonable combination. Therefore, Applicant requests that the Examiner reconsider and withdraw the rejection of amended claim 8 under 35 U.S.C. § 103(a) based on ALFIERI and SHAFER.

Claim 9 depends from claim 8. Therefore, claim 9 is patentable over ALFIERI and SHAFER, whether taken alone or in any reasonable combination, for at least

the reasons given above with respect to amended claim 8. Therefore, Applicant requests that the Examiner reconsider and withdraw the rejection of claim 9 under 35 U.S.C. § 103(a) based on ALFIERI and SHAFER.

Rejection under 35 U.S.C. § 103(a) based on AYERS and SHAFER

Claim 23 stands rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over AYERS and SHAFER. Applicant traverses this rejection.

Amended independent claim 23 recites a device-implemented router comprising a device-implemented means for performing routing processes to determine routing for received packets; a device-implemented means for performing forwarding processes to forward the received packets to an appropriate destination; a device-implemented means for implementing control resources; a device-implemented means for implementing data resources, including physical specifications of the device-implemented router; and a device-implemented means for implementing a plurality of virtual routers that share ones of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding processes, the device-implemented means for implementing control resources, and the device-implemented means for implementing data resources, based on a plurality of programmably modifiable resource sharing configurations that are programmably modifiable by a user to share resources between the plurality of virtual routers, in order to implement different device-implemented virtual router configurations based on different sets of network requirements. AYERS and SHAFER, whether taken alone or in any reasonable combination, do not disclose or suggest one or more features of amended claim 23.

For example, ALFIERI and SHAFER do not disclose or suggest a device-implemented means for implementing a plurality of virtual routers that share ones of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding processes, the device-implemented means for implementing control resources, and the device-implemented means for implementing data resources, based on a plurality of programmably modifiable resource sharing configurations that are programmably modifiable by a user to share resources between the plurality of virtual routers, in order to implement different device-implemented virtual router configurations based on different sets of network requirements, as recited by claim 23. The Examiner admits that AYERS does not disclose user programmable resources and relies on ¶ 0004 of SHAFER for allegedly disclosing this feature. (Office Action, p. 5.) Applicant submits that this alleged disclosure of SHAFER does not disclose or suggest the above identified features of amended claim 23.

As discussed above, ¶ 0004 of SHAFER discloses a network management interface that provides access to software modules and other resources on a router. The network management interface allows a user to configure the router to more efficiently manage router resources and to manage relationships with other routers. This section of SHAFER does not disclose or suggest a device-implemented means for implementing a plurality of virtual routers that share ones of the device-implemented means for performing routing processes, the device-implemented means for performing forwarding processes, the device-implemented means for implementing control resources, and the device-implemented means for implementing data resources, based on a plurality of programmably modifiable

resource sharing configurations that are programmably modifiable by a user to share resources between the plurality of virtual routers, in order to implement different device-implemented virtual router configurations based on different sets of network requirements, as recited by amended claim 23.

While SHAFER's management interface may allow a user to configure a router based on various parameters, Applicant submits that the amended claim 23 recites more than just configuring a router based on parameters. Rather, claim 23 specifically recites that a plurality of programmably modifiable virtual routers share resources based on a plurality of programmably modifiable resource sharing configurations input by a user. Thus, under claim 23 there are a plurality of resource sharing configurations that can be reconfigured, by a user, to control how each virtual router uses the resources of a single router. On the other hand, ¶ 0004 of SHAFER merely discloses a management interface that controls configuring a router. This section of SHAFER does not disclose or suggest a plurality of programmably modifiable sharing configurations that control how multiple virtual routers share resources. In fact, neither this section nor any other section of SHAFER mentions sharing resources between a plurality of virtual routers. Therefore, SHAFER does not reasonably disclose or suggest that the backbone virtual router and the regional virtual router reconfigurably share resources of the single physical router based on a plurality of resource sharing configurations and an input by a user, in order to implement different device-implemented virtual router resource sharing configurations based on different sets of network requirements, as recited by claim 23.

For at the foregoing reasons, Applicant submits that amended claim 23 is

patentable over AYERS and SHAFER, whether taken alone or in any reasonable combination. Therefore, Applicant requests that the Examiner reconsider and withdraw the rejection of amended claim 23 under 35 U.S.C. § 103(a) based on AYERS and SHAFER.

Rejection under 35 U.S.C. § 103(a) based on AYERS, ALFIERI, and SHAFER

Claims 1 and 16 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over AYERS, ALFIERI, and SHAFER. Applicant traverses this rejection.

Amended independent claims 1 and 16 recite features similar to (yet possibly of different scope than) features described above with respect to claim and 23. While not acquiescing in the rejection of claims 1 and 16, Applicant submits that the disclosure of ALFIERI does remedy the deficiencies in the disclosures of AYERS and SHAFER, as set forth above with respect to amended claim 23. Therefore, Applicant submits that claims 1 and 16 are patentable over AYERS, ALFIERI, and SHAFER, whether taken alone or in any reasonable combination, for at least reasons similar to the reasons given above with respect to claim amended 23. Therefore, Applicant requests that the Examiner reconsider and withdraw the rejection of amended claims 1 and 16 under 35 U.S.C. § 103(a) based on AYERS, ALFIERI, and SHAFER.

Rejection under 35 U.S.C. § 103(a) based on AYERS, SHAFER, and ALFIERI

Claims 24-26 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over AYERS, SHAFER, and ALFIERI. Applicants traverse this rejection.

Claims 24-26 depend from claim 23. While not acquiescing in the rejection of claims 24-26, Applicant submits that the disclosure of ALFIERI does remedy the deficiencies in the disclosures of AYERS and SHAFER, as set forth above with

respect to amended claim 23. Therefore, Applicant submits that claims 24-26 are patentable over AYERS, SHAFER, and ALFIERI, whether taken alone or in any reasonable combination, for at least reasons similar to the reasons given above with respect to amended claim 23. Therefore, Applicant requests that the Examiner reconsider and withdraw the rejection of claims 24-26 under 35 U.S.C. § 103(a) based on AYERS, SHAFER, and ALFIERI.

Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully requests the Examiner's reconsideration of this application and the timely allowance of the pending claims.

Should the Examiner find some issue to remain unresolved, or should any new issues arise which could be eliminated through discussions with Applicant's representative, then the Examiner is invited to contact the undersigned by telephone to expedite prosecution of this application.

As Applicant's remarks with respect to the Examiner's assertions are sufficient to overcome these assertions, Applicant's silence as to assertions by the Examiner in the Office Action or certain requirements that may be applicable to such assertions (e.g., whether a reference constitutes prior art, reasons to modify a reference and/or to combine references, assertions as to dependent claims, etc.) is not a concession by Applicant that such assertions are accurate or such requirements have been met, and Applicant reserves the right to analyze and dispute such assertions/requirements in the future.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,
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